embodiment, the image processor **34** is a control processor or other processor of a medical diagnostic imaging system. In another embodiment, the image processor **34** is a processor of an imaging review workstation or PACS system.

[0098] The image processor **34** is configured by hardware, firmware, and/or software. For example, the image processor **34** operates pursuant to stored instructions to perform various acts described herein, such as acts **12**, **16**, **18**, and/or **20** of FIG. **1**. In one embodiment, the image processor **34** is configured to generate a shape model for each scan or examination, determine a spatial transform between shape models from different scans or examinations, and/or generate images including information from a comparison and/or the spatial transformation.

[0099] The image processor **34** may be configured to generate a graphic indicating a point, scan plane position, and/or shape model. For example, a 3D point is represented relative to an organ surface with one or more graphics indicating positioning of a current scan plane. The image processor **34** is configured to calculate a value, such as a measurement of a lesion area, volume, or length. The image processor **34** is configured to generate an image or images, such as generating spatially registered images or an image of measurements over time.

[0100] The display device **16** is a CRT, LCD, plasma, monitor, projector, printer, or other now known or later developed display device. The display **40** is configured by loading an image from the processor into a display buffer. Alternatively, the display **40** is configured by reading out from a display buffer or receiving display values for pixels.

[0101] The display **40** is configured to display a medical image or images, such as a volume rendering, MPR images, plane graphics, calipers, measurement graphics, and/or user interface tools. Overlaid and/or side-by-side images from different examinations may be displayed simultaneously.

[0102] While the invention has been described above by reference to various embodiments, it should be understood that many changes and modifications can be made without departing from the scope of the invention. It is therefore intended that the foregoing detailed description be regarded as illustrative rather than limiting, and that it be understood that it is the following claims, including all equivalents, that are intended to define the spirit and scope of this invention.

I (we) claim:

1. A method for aligning scans from different times with a medical imager, the method comprising:

scanning a patient at a first time, the scanning resulting in first scan data representing the patient at the first time;

scanning, by the medical imager, the patient at a second time, the scanning resulting in second scan data representing the patient at the second time, the second time being for a different imaging session than the first time;

generating a first surface in three-dimensions, the first surface representing the patient at the first time;

generating a second surface in three-dimensions, the second surface representing the patient at the second time;

determining a spatial transformation between the first surface and the second surface;

comparing first information from the first scan data with second information from the second scan data based on the spatial transformation; and

displaying an image of the first and second information.

2. The method of claim **1** wherein generating the first and second surfaces comprises generating the first and second surfaces as outer surfaces of the patient.

3. The method of claim **2** wherein generating the first and second surfaces comprises generating with a depth camera.

4. The method of claim **2** wherein generating the first and second surfaces comprises generating the outer surfaces from the first and second scan data.

5. The method of claim **2** wherein generating the first and second surfaces comprises generating the outer surfaces from shape models fit to a characteristic of the patient at the first and second times, respectively.

6. The method of claim **1** wherein the medical imager comprises an ultrasound scanner, and wherein scanning the patient at the first and second times comprises freehand-3D scanning with a tracked one-dimensional transducer array, and wherein generating the first and second surfaces comprises generating the first and second surfaces as an organ surface from the first and second scan data, respectively.

7. The method of claim **6** further comprising storing a first location of a first lesion from the first scan, and wherein comparing comprises determining a second location of the first lesion in the second scan using the spatial transformation.

8. The method of claim **6** wherein comparing comprises comparing a lesion characteristic from the first and second times.

9. The method of claim **6** wherein comparing comprises comparing a location from the first scan data to a scan plane position of the transducer array during the scanning of the second time.

10. The method of claim **1** wherein comparing comprises aligning the first scan data with the second scan data based on the spatial transformation.

11. The method of claim **1** wherein the first time is prior to the second time, and further comprising storing the first surface with the first scan data without storing an entire three-dimensional scan.

12. The method of claim **1** wherein determining the spatial transformation comprises registering the first surface with the second surface with rigid or non-rigid alignment.

13. The method of claim **1** further comprising storing an image of a lesion of the patient from the scanning of the first time, the image of the lesion of the cropped to the lesion.

14. The method of claim **1** further comprising guiding during the scanning of the second based on the spatial transform.

15. The method of claim **14** wherein guiding comprises displaying a spatial indication of a lesion.

16. A method for aligning scans from different times with a medical ultrasound imager, the method comprising:

three-dimensionally scanning, by the medical ultrasound imager with a tracked transducer, a volume of a patient during a first appointment;

determining a three-dimensional distribution represented by scan data from the three-dimensionally scanning during the first appointment and one or more lesions represented by the scan data;

storing an image for the one or more lesions, and storing a location or locations for the one or more lesions and the three-dimensional distribution related to a first coordinate system;